

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF SOUTH CAROLINA
COLUMBIA DIVISION**

SUSAN BOYKIN, Individually and as Personal Representative of the Estate of Philip Boykin)	C.A. No.: 3:13-cv-00417-MGL
)	
Plaintiff,)	
)	
v.)	
)	
SPECTRUM LUBRICANTS CORP.)	
IDEMITSU LUBRICANTS AMERICAN CORPORATION, ACUITY SPECIALTY PRODUCTS, INC., ZEP, INC., ACUITY SPECIALTY PRODUCTS GROUP, INC., SAFETY KLEEN CORP., SAFETY KLEEN SYSTEMS, INC., BEL-RAY COMPANY, INC., WURTH USA, INC., WURTH/SERVICE SUPPLY INC., WURTH ACTION BOLT & TOOL CO., EXXON MOBIL CORPORATION, YAMAHA MOTOR CORPORATION, ADVANCE AUTO PARTS, INC., WINZER CORPORATION, PROVIDENCE ENVIRONMENTAL, INC., JOHN DOES 1-100 (WHOSE TRUE NAMES ARE UNKNOWN),)	
)	
Defendants.)	
)	

**DEFENDANT YAMAHA MOTOR CORPORATION, U.S.A.'S MOTION AND
MEMORANDUM IN SUPPORT OF MOTION TO STRIKE THE TESTIMONY OF
PLAINTIFF'S EXPERT ROBERT JAY HARRISON**

COMES NOW Defendant Yamaha Motor Corporation, U.S.A, in conjunction with Defendants Bel-Ray Company, Inc., Wurth USA, Inc., Wurth/Service Supply Inc., and Wurth Action Bolt & Tool Co., and files this Motion to Exclude the testimony and expert opinions of Robert Jay Harrison pursuant to *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 588 (1993).

I. INTRODUCTION.

Phillip Boykin was a mechanic. He passed away in 2009 of Non Hodgkin's Lymphoma ("NHL"). His wife, Plaintiff Susan Boykin ("Plaintiff"), is now suing the various defendants, including YMUS, alleging that their automotive repair products contained trace levels of benzene, levels well below any regulatory standard, and caused her husband's death.

To meet her burden of proof, Plaintiff retained Dr. Robert Harrison to render general and specific causation opinions. Each of these opinions must be excluded. Dr. Harrison's opinions are not remotely supported by the available scientific literature, are not based on reliable scientific methods, and certainly are not supported by the actual facts of this case. He selectively chose and manipulated the available data to support the conclusion he desired to reach, then inserted his own *ipse dixit* opinion. Dr. Harrison's conduct is precisely that which *Daubert* and Rule 701, Federal Rules of Evidence, seek to preclude from the courtroom.

II. ARGUMENT.

A. The *Daubert* Standard.

To prevail in a toxic tort case, a plaintiff must show both general causation and specific causation. *See Knight v. Kirby Inland Marine, Inc.*, 482 F.3d 347, 352 (5th Cir. 2007). In addition, where several sources of the alleged toxin combine to produce injury, the plaintiff must prove that the defendant's product was a substantial factor in causing the plaintiff's injury. *See, e.g., Little v. Brown & Williamson*, 243 F.Supp.2d 480, 498-99 (D.S.C. 2001) ("[A] plaintiff under this rule must show that it is more likely than not that the conduct of the defendant was a substantial factor in bringing about the result."). Generally, this must be done through the use of relevant and reliable expert testimony. *See, e.g., Cooper v. Smith & Nephew, Inc.*, 259 F.3d 194,

199 (4th Cir. 2001). However, this expert testimony must be reliable. *Daubert v. Merrell Dow Pharm., Inc.*, 509 U.S. 579, 588 (1993).

Rule 702 of the Federal Rules of Evidence, which governs the admissibility of expert witness testimony, provides:

A witness who is qualified as an expert by knowledge, skill, experience, training, or education may testify in the form of an opinion or otherwise if (a) the expert's scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based on sufficient facts or data; (c) the testimony is the product of reliable principles and methods; and (d) the expert has reliably applied the principles and methods to the facts of the case.

Fed. R. Evid. 702. Pursuant to Rule 702, the trial judge is assigned the task of "ensuring that an expert's testimony both rests on a reliable foundation and is relevant to the task at hand." *Daubert*, 509 U.S. at 588 (1993); *Kumho Tire Co. v. Carmichael*, 526 U.S. 137 (1999).

The Supreme Court's decisions in *Daubert* and *Kumho* require that expert testimony is admissible only if it follows scientific methods. *Daubert*, 509 U.S. 579 (1993); *Kumho Tire Co.*, 526 U.S. 137 (1999). This is a matter on which Plaintiff has the burden. Unless she can demonstrate that the opinions of her experts want to give have a valid scientific basis, the opinions must be excluded.

Rule 702 has three initial requirements: (1) the proffered witness must be first qualified as an expert; (2) the qualified expert must testify about matters requiring scientific, technical or specialized knowledge; and (3) the qualified expert's testimony must assist the trier of fact. Fed. R. Evid. 702. Accordingly, "[e]xperts must have specialized knowledge that will assist the trier of fact, and the knowledge, skill, experience, training and education that qualifies them on the subject of their testimony." *U.S. v. Johnson*, 617 F.3d 286, 294 (4th Cir. 2010).

In *Daubert*, the United States Supreme Court established a "gate keeping role for the judge" in determining the reliability and relevancy of expert testimony under Federal Rule of Evidence 702. The purpose of this gate-keeping role is "to make certain that an expert, whether basing testimony upon professional studies or personal experience, employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." *Kumho Tire Co.*, 526 U.S. at 152 (1999). Under *Kumho Tire*, the reasoning of *Daubert* extends to expert testimony based upon "technical or other specialized knowledge" as well as more purely scientific knowledge. *See Kumho Tire*, 526 U.S. at 141. The proponent of an expert's testimony must prove, by a preponderance of the evidence, that his testimony is reliable under *Daubert*. *See Maryland Cas. Co. v. Therm-O-Disc, Inc.*, 137 F.3d 780, 783 (4th Cir. 1998).

Under *Daubert*, the testimony of a witness, who is well-qualified by experience, still may be barred if it is not based on sound data. *See Anderson v. Westinghouse Savannah River Co.*, 406 F.3d 248, 263 (4th Cir. 2005) (upholding district court's exclusion of expert's testimony where data was derived from "deficient" studies). The expert must have good grounds for his or her belief; the expert's opinion must not be based on "subjective belief or unsupported speculation." *Daubert*, 509 U.S. at 590.

Especially in the area of scientific testimony, the Court's gatekeeping function is essential to ensure that "junk science" does not enter the courtroom. *See United States v. Crisp*, 324 F.3d 261, 268 (4th Cir. 2003). *Daubert* thus prevents experts, who may otherwise greatly influence the jury simply because of their credentials, from self-authenticating their opinions and methods and from offering purely "subjective" beliefs in the guise of "expert" opinions. *See also Cavallo v. Star Enterprise*, 100 F.3d 1150, 1159 (4th Cir. 1996) (excluding experts' testimony where opinions were "not 'supported by appropriate validation'" and "based largely on

hypothesis and speculation.") (citations omitted). Dr. Harrison fails to meet the standard set forth in *Daubert* and its progeny. His general causation opinion is not based on the available science; rather, he manipulated and cherry picked the science to support his desired conclusion. His specific causation opinion is based off of an *ipse dixit* guess; made without any exposure assessment for any YMUS or other defendants' product. His opinion is an arbitrary dogmatic statement, which the Plaintiff expects the jury to accept as valid. His opinions do not satisfy this court's standards for expert opinions and must be excluded.

B. Dr. Harrison's general causation opinion must be excluded because he relies on irrelevant, unreliable, and statistically insignificant data to support his "weight of the evidence" opinion.

To support his general causation opinion, Dr. Harrison compiled a 228-page "declaration" listing numerous studies, reports, and similar literature that he claims supports his "weight of the evidence" conclusion.¹ The court should not be distracted by the Declaration's heft. This declaration has the sole purpose of misleading and intimidating the court into believing there exists a question of fact as to whether benzene is a cause of NHL. Upon close examination, the material included in this declaration does not support the conclusion that Dr. Harrison has reached. Rather, Dr. Harrison misused and selectively chose the available data to support his conclusion.

Much of the literature Dr. Harrison cites in his Declaration does not involve NHL. Much of the literature he cites does not even involve benzene. Importantly, the literature contained in the Declaration that does involve benzene exposure and NHL – the only literature that is relevant to this case – firmly establishes that benzene is not a cause of NHL. "An opinion on general causation is inadmissible if it rests entirely on studies that do not show statistically significant

¹ Attached hereto as Exhibit "A" (Hereinafter referred to as "Declaration").

results." *Wagoner v. Exxon Mobil Corp.*, 813 F. Supp. 2d 771, 800 (E.D. La. 2011) (citing *Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 145 (1997); *see also Wells v. SmithKline Beecham Corp.*, 601 F.3d 375, 381 (5th Cir. 2010); *Allen v. Pa. Eng'g Corp.*, 102 F.3d 194, 197 (5th Cir. 1996) ("While appellants' experts acknowledge the lack of statistically significant epidemiological evidence, they rely on certain studies as 'suggestive' of a link between EtO exposure and brain cancer. 'Suggestiveness' is not by the experts' own admission statistical significance . . . ; this basis for their scientific opinion must be rejected."); *Burleson v. Tex. Dep't of Criminal Justice*, 393 F.3d 577, 586 (5th Cir. 2004) ("Here, as in *Allen*, there are no epidemiological studies supporting a correlation between the suggested causative agent and the type of cancer experienced by the plaintiff.").

For his causation opinion to be admissible, the studies upon which Dr. Harrison relies must establish a relative risk between benzene exposure and NHL – not cancer in general – of greater than 2. *See Marder v. G.D. Searle & Co.*, 630 F. Supp. 1087, 1092 (D. Md. 1986) *aff'd sub nom. Wheelahan v. G D Searle & Co.*, 814 F.2d 655 (4th Cir. 1987) ("The upper range of the confidence intervals signify the outer realm of possibilities, and plaintiffs cannot reasonably rely on these numbers as evidence of the probability of a greater than two-fold risk. Their argument reaches new heights of speculation and has no scientific basis."); *See Smith v. Wyeth-Ayerst Labs. Co.*, 278 F. Supp. 2d 684, 691 (W.D.N.C. 2003) (citing REFERENCE MANUAL ON SCIENTIFIC EVIDENCE, Federal Judicial Center, pg. 384-85 (2nd Ed.2000)); *Sakaria v. TWA*, 8 F.3d 164, 172–73 (4th Cir. 1993) ("In a long line of decisions in this circuit we have emphasized that proof of causation must be such as to suggest 'probability' rather than mere 'possibility' . . . Where resolution of a causation issue depends on expert opinion, it must meet [that standard.]"); *Daubert v. Merrell Dow Pharm., Inc.*, 43 F.3d 1311, 1321 (9th Cir. 1995) ("A

relative risk of less than two may suggest teratogenicity, but it actually tends to disprove legal causation, as it shows that Bendectin does not double the likelihood of birth defects."). *See also Baughman v. Am. Tel. & Tel. Co.*, 306 S.C. 101, 111, 410 S.E.2d 537, 543 (1991) ("It is not sufficient for the expert . . . to testify merely that the ailment might or could have resulted from the alleged cause."); *Merrell Dow Pharmaceuticals, Inc. v. Havner*, 953 S.W.2d 706, 718-23, 727 (Tex. 1997); *Hall v. Baxter Healthcare Corp.*, 947 F. Supp. 1387, 1403 (D. Or. 1996) (requiring breast-implant plaintiffs to demonstrate exposure to breast implants more than doubled risk of their alleged injuries); *Merck & Co., Inc. v. Garza*, 347 S.W.3d 256 (Tex. 2011) ("*Havner* holds, and we reiterate, that when parties attempt to prove general causation using epidemiological evidence, a threshold requirement of reliability is that the evidence demonstrate a statistically significant doubling of the risk."); *In re Breast Implant Litigation*, 11 F. Supp. 2d 1217, 1228-29 (D. Colo. 1998) (excluding plaintiff's evidence relating to causation after reviewing 17 epidemiological studies published in peer reviewed medical journals, concluding that breast implants do not double risk of any known disease); *Exxon Corp. v. Makofski*, 116 S.W.3d 176, 184 (Tex. App. Houston 14th Dist. 2003) (rejecting expert testimony because it was not based on epidemiological studies that showed a doubling of relative risk).

This required threshold is consistent with South Carolina law. *See Gambrell v. Burleson*, 252 S.C. 98, 101-02, 165 S.E.2d 622, 623 (1969) (Where one relies upon medical testimony alone to show a causal connection between an injury and a subsequent condition, the testimony must meet the 'most probably' rule, and it is not sufficient that the malady in question 'possibly' or 'could have' or 'might have' resulted from the injury."). Here, the relevant scientific literature does not establish an association between benzene and NHL required to establish causation. Dr.

Harrison's reliance on irrelevant and statistically insignificant data renders his opinion unreliable and inadmissible.

1. Anecdotal case reports cannot be used to establish causation of Boykin's disease in this case.

The first forty-five (45) pages of Dr. Harrison's declaration have nothing to do with the issue: whether benzene causes NHL. Dr. Harrison begins his attempt on page forty-six (46), with a review of case reports. However, case reports cannot be used to support any causation opinion of Boykin's disease.² "Case reports lack control and thus do not provide as much information as controlled epidemiological studies." Federal Judicial Center, Reference Manual of Scientific Evidence 475 (2d Ed. 2000). "Causal attribution based on case studies must be regarded with caution." *Id.*; *See generally State v. Pittman*, 373 S.C. 527, 647 S.E.2d 144 (2007) (refusing to admit testimony of anecdotal case reports); *Kilpatrick v. Breg. Inc.*, 613 F.3d 1329 (11th Cir. 2010); *Cartwright v. Home Depot*, 936 F. Supp. 900 (M.D. Fla. 1996); Beth Dawson & Robert Trapp, *Basics & Clinical Biostatistics*, Chapter 13 – Reading the Medical Literature (2004) ("Case-series studies are the weakest kinds of observational studies and represent a description of typically unplanned observations; in fact, many would not call them studies at all. Their primary use is to provide insights for research questions to be addressed by subsequent, planned studies."). Dr. Harrison's inclusion of these case reports is nothing more than useless filler material designed to expand the declaration and give the illusion that important findings are being discussed. Even if case reports were permitted, which they are not, Dr. Harrison's use of them is wholly improper.

² *See also* YMUS' Motion in Limine to preclude evidence of anecdotal reports, filed contemporaneously herewith.

Dr. Harrison includes several case reports that have nothing to do with NHL whatsoever. The first case report he cites, Santesson (1897),³ did not even involve NHL. This report concerned aplastic anemia. The LeNoir and Claude (1897)⁴ study likewise involved acute lymphocytic leukemia, not NHL. The Dar et al. (2005)⁵ case report concerned an individual that developed a pseudolymphoma of the skin, a benign disease that is not even a true cancer. Interestingly, Dr. Harrison concludes this section by stating, "[i]n summary, the published case reports of benzene-induced non-Hodgkin's lymphomas, support a causal relationship, *especially the case report by Dar*, which provides strong evidence of a causal association between benzene and the development of non-Hodgkin's lymphoma." The *Dar* patient did not even have NHL. This is not science. The court must not let Dr. Harrison insert irrelevant and unreliable opinions into this case.

2. Dr. Harrison's reliance on unreliable and statistically insignificant case-control studies must not be permitted.

Dr. Harrison next cites to numerous case-control studies in an attempt to support his conclusion.⁶ Once again, he manipulates the data, selectively chooses the available literature, and relies on statistically insignificant studies. For example, in paragraph 190 of his declaration, Dr. Harrison cites to the Cantor and Fraumeni (1980)⁷ study. First, this study was not even a case-control study. It was an ecological study and cannot be used to support any causation opinion. *See, e.g., Ruff v. Ensign-Bickford Indus., Inc.*, 168 F. Supp. 2d 1271, 1282 (D. Utah 2001) ("It is well established in the scientific community that ecological studies are correlational studies and generally provide relatively weak evidence for establishing a conclusive cause and effect

³ Declaration ¶ 176; Santesson (1897) (Exhibit "B")

⁴ *Id.*; LeNoir and Claude (1897) (Exhibit "C")

⁵ *Id.*; The Dar et al. (2005) (Exhibit "D")

⁶ *See* Declaration at pg. 50. (Section VIII)

⁷ *See* Cantor and Fraumeni (1980) (Exhibit "E").

relationship."). Moreover, the authors of the study themselves stated "Descriptive studies such as this cannot establish causation but are valuable in providing guidance for future research, including case-control and cohort studies."⁸

Dr. Harrison next cites to Olsson, et al (1981) for support.⁹ This was not a case-control study, as Dr. Harrison suggests. Rather, this was a case-series study on NHL patients. The authors themselves state, "no matching controls were interviewed about exposure to solvents." Next, Dr. Harrison cites to Hardell, et al. (1981).¹⁰ This case study-control study included chemical constituents unrelated to this case (Phenoxy Acids/ Chlorophenals/Styrene) and was not specific to NHL. The results for low exposure levels were statistically insignificant. Next, Dr. Harrison cites to the Balarajan (1983) case-control study.¹¹ This study did involve, mention, or evaluate benzene or solvent exposure. In addition, none of the risks were significantly elevated.

The overwhelming majority of the studies Dr. Harrison cites were either not specific to benzene (for example included pesticide exposures and TCE), did not result in statistically significant results, or both. (*See* attached Appendix, Table 1, attached hereto). Dr. Harrison's general causation opinion is based on manipulated, irrelevant data and must be excluded.

3. Dr. Harrison relies on irrelevant, unreliable and statistically insignificant epidemiological cohort studies to support his hypothesis.

Dr. Harrison cites to many different cohort studies of various industries and occupations to further support his hypothesis, the majority of which are not statistically significant and include many chemicals other than benzene. Dr. Harrison begins his discussion with studies of

⁸ *Id.*

⁹ Declaration ¶ 191; Olsson, et al (1981) (Exhibit "F").

¹⁰ *Id.* at 192; Hardell, et al. (1981) (Exhibit "G").

¹¹ *Id.* at 193; Balarajan (1983) (Exhibit "H").

tire manufacturing workers.¹² The primary cancer of interest in these tire manufacturing/rubber worker cohorts was leukemia, not NHL. Table 2 of the Appendix, attached hereto, establishes the invalidity of Dr. Harrison's methodology and the studies he relies on for support. These studies have nothing to do with the association between benzene and NHL. These studies find no significant association between benzene and NHL. The studies do not even find significant associations for types of lymphoma other than NHL. The one study that did involve benzene was not significantly associated with any type of blood cancer. *See Wilcosky et al. (1984).*¹³ Dr. Harrison's entire Declaration is replete with irrelevant science as it relates to the instant case.

Dr. Harrison next cites to the Pliofilm cohort developed by researchers at the National Institute for Occupational Health (NIOSH).¹⁴ This study is responsible for the identification of benzene as a cause of acute myelogenous leukemia (AML), not NHL. NHL was not even evaluated. What Dr. Harrison has failed to inform the court (or include in his declaration) is that there exists an update to this particular cohort. *See Rinsky et al., (2002).*¹⁵ This update did evaluate NHL, and found no risk at all for NHL.¹⁶ Because this study only used benzene and not other solvents, this study is the best reflection of benzene's carcinogenic potential, as it is not confounded by exposures to other solvents. Dr. Harrison's Declaration does not mention this study.

Dr. Harrison cites to several oil refinery studies, all of which fail to meet the necessary causation standard. For example, Dr. Harrison cites to Tabershaw et al, *A Mortality Study of*

¹² See Declaration at pg. 82.

¹³ Wilcosky et al. (1984) (Exhibit "I")

¹⁴ See Declaration at pg. 87.

¹⁵ Rinsky et al., (2002) (Exhibit "J").

¹⁶ *Id.*

Petroleum Refinery Workers (1974),¹⁷ Kaplan, S.D., *Update of a Mortality Study of Workers in Petroleum Refineries* (1986),¹⁸ Thomas, et al, *Mortality Patterns Among Workers in Three Texas Oil Refineries* (1982),¹⁹ Morgan, R.W., et al *Cause-Specific Mortality Among Employees at the Chevron Richmond and El Segundo Refineries* (1983),²⁰ Wong, O., et al, *An Epidemiological Study of Petroleum Refinery Employees* (1986),²¹ Dagg, T.G., et al. *An Updated Cause Specific Mortality Study of Petroleum Refinery Workers* (1992)²², Shallenger, L.G., et al, *An Updated Mortality Study of Workers in Three Major United States Refineries and Chemical Plants* (1992),²³ Lewis, R.J., et al, *Mortality Among Three Refinery/Petrochemical Plant Cohorts: I 1970 to 1982 Active/Terminated Workers* (2000)²⁴, Huebner, W.W., et al, *Incidence of Lymphohematopoietic Malignancies in a Petrochemical Industry Cohort: 1983-1994 Follow Up* (2000),²⁵ Huebner, W.W., et al, *Mortality Updates (1970-1997) of Two Refinery/Petrochemical Plant Cohorts at Baton Rouge, Louisiana, and Baytown, Texas* (2004),²⁶ Tsai, S.P., et al, *Retrospective Mortality and Medical Surveillance Studies of Workers in Benzene Areas of Refineries* (1983),²⁷ None of the above-referenced studies establishes a significant risk of developing NHL from benzene exposure. Dr. Harrison's general causation opinion cannot be based on these studies. The law requires more.

¹⁷ See *Id.* at ¶ 271. (Exhibit "K")

¹⁸ *Id.* at ¶ 272. (Exhibit "L")

¹⁹ *Id.* at ¶ 273. (Exhibit "M")

²⁰ *Id.* at ¶ 274. (Exhibit "N")

²¹ *Id.* at ¶ 276. (Exhibit "O").

²² *Id.* at ¶ 277. (Exhibit "P").

²³ *Id.* at ¶ 278. (Exhibit "Q").

²⁴ *Id.* at ¶ 279. (Exhibit "R").

²⁵ *Id.* at ¶ 280. (Exhibit "S")

²⁶ *Id.* at ¶ 281. (Exhibit "T").

²⁷ *Id.* at ¶ 282. (Exhibit "U").

Dr. Harrison discusses some other major benzene exposure cohorts under the heading "Chemical Worker Studies."²⁸ Again, Dr. Harrison selectively chose the literature. He cites to the Dow Chemical Cohort, but only cites to the Ott et al. (1978)²⁹ and Bond et al. (1986)³⁰ studies. He fails to cite or note the updated report of this cohort. That report, Bloemen et al. (2003),³¹ reported a mortality risk that was essentially zero, and noted that no dose-response relationship existed for benzene. Dr. Harrison cites to Collins et al. (2003),³² the Monsanto Chemical Worker Study. In doing so, he misleads the court into thinking this study supports his conclusion. It does not. He fails to mention that this study found insignificant associations for benzene.³³ Moreover, the "no exposure groups" had non-significant elevations as high or higher than those observed with the benzene exposure groups.³⁴ This indicates the non-significant elevations are not related to benzene. Conveniently, Dr. Harrison leaves this information out.

4. Ecological Studies are not reliable.

Dr. Harrison cites to numerous ecological studies to support his conclusion.³⁵ These studies may not be relied on for causation opinions. "It is well established in the scientific community that ecological studies are correlational studies and generally provide relatively weak evidence for establishing a conclusive cause and effect relationship." *Ruff v. Ensign-Bickford Indus., Inc.*, 168 F. Supp. 2d 1271, 1282 (D. Utah 2001). "Such studies may be useful for identifying associations, but they rarely provide definitive causal answers." Federal Judicial Center, Reference Manual of Scientific Evidence 344 (2d Ed. 2000).

²⁸ *Id.* at pg. 124, Section I.

²⁹ Ott et al. (1978) (Exhibit "V").

³⁰ Bond et al. (1986) (Exhibit "W").

³¹ Bloemen et al. (2003) (Exhibit "X").

³² Collins et al. (2003) (Exhibit "Y")

³³ *Id.*

³⁴ *Id.*

³⁵ See Declaration at pg. 155.

5. Dr. Harrison fails to acknowledge recent meta-analyses that establish there is no significant association between low levels of benzene exposure and NHL.

Not only does Dr. Harrison base his opinion on statistically insignificant, irrelevant literature, he fails to acknowledge recent meta-analyses that firmly reject his hypothesis that benzene is a cause of NHL. Meta-analyses combine information from all studies on a certain topic. *See* Reference Manual at 166. Dr. Harrison omits – as he must – these studies from his "weight of the evidence" opinion. Table 3 of the Appendix, attached hereto, illustrates why Dr. Harrison would not want to include these recent studies in his decision making process. Dr. Harrison selectively chose the available data to conform the evidence to his desired conclusion. His methodology is unsound; his opinion is unreliable.

C. Dr. Harrison's specific causation opinion must be stricken as to YMUS because he has no exposure assessment as to any YMUS product from which to base his opinion.

Even assuming that benzene was a cause of NHL, Plaintiff must also establish specific causation. *See, e.g., Little v. Brown & Williamson*, 243 F.Supp.2d at 498-99 (D.S.C. 2001); *Kirby Inland Marine, Inc.*, 482 F.3d at 352 (5th Cir.2007). Dr. Harrison opines that all of the Defendants' products were a specific and substantial cause of Boykin's NHL.³⁶ Dr. Harrison reached this opinion without knowing the level of benzene exposure that Boykin received from any YMUS or other Defendants' product. His specific causation opinion is entirely speculative and unreliable.

The law in toxic tort cases is clear: "[i]n order to carry the burden of proving a plaintiff's injury was caused by exposure to a specified substance, the plaintiff must demonstrate the levels of exposure that are hazardous to human beings generally *as well as plaintiff's actual level of*

³⁶ Deposition of Robert J. Harrison Volume I at 111:11-18. (Attached hereto as Exhibit "Z"); *see also* December 17, 2013 Report of Dr. Robert J. Harrison (Attached hereto as Exhibit "AA").

exposure." *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 263 (4th Cir. 1999) (emphasis added); *see also Zellers v. NexTech Ne., LLC*, 533 F. App'x 192, 198 n.8 (4th Cir. 2013) *cert. denied sub nom. Zellars v. Nextech Ne., LLC*, 134 S. Ct. 911 (2014) (finding plaintiff must put forth specific evidence regarding her individual level of exposure). Dr. Harrison admitted he had not performed any exposure assessment:

Q. Have you done a qualitative exposure assessment for Mr. Boykin in this case?

A. Well, no. Because we have Dr. Stewart's report. So we have a quantitative exposure assessment.³⁷

Dr. Harrison admitted that his causation opinion is based on Dr. Stewart's exposure assessment. For Dr. Harrison's causation opinion to be admissible against YMUS, Dr. Stewart must have included YMUS benzene-containing products in his exposure assessment. He did not. As set forth in YMUS's memorandum in support of summary judgment, Dr. Stewart failed to include or otherwise model any exposure to a benzene-containing YMUS product. (*See* entry 230.1 at Section I).

Without any exposure assessment, Dr. Harrison's causation opinion as to YMUS or any other Defendant is entirely speculative. The court must employ its gate-keeping function and prevent Dr. Harrison from announcing his speculative opinion to the jury. This is precisely what the U.S. Supreme Court has warned against. *See Gen. Elec. Co. v. Joiner*, 522 U.S. 136, 146 (1997) ("But nothing in either *Daubert* or the Federal Rules of Evidence requires a district court to admit opinion evidence that is connected to existing data only by the *ipse dixit* of the expert. A court may conclude that there is simply too great an analytical gap between the data and the opinion proffered."); *see also Bourne ex rel. Bourne v. E.I. Dupont de Nemours & Co.*, 189 F.

³⁷ Deposition of Robert J. Harrison Volume II at 239:22-25. (Attached hereto as Exhibit "BB").

Supp. 2d 482, 499 (S.D.W. Va. 2002) *aff'd sub nom. Bourne ex rel. Bourne v. E.I. DuPont de Nemours & Co.*, 85 F. App'x 964 (4th Cir. 2004) ("Rather than conducting any type of test or study to attempt to recreate the actions described by Mrs. Bourne in her deposition with respect to treating her plants with Benlate, it appears that Dr. Howard has developed arbitrary figures to represent what he deems to be the percentage of Mrs. Bourne's body exposed to Benlate . . .").

Given the quandary that Dr. Harrison finds himself in with respect to YMUS, he will likely argue that a specific causation opinion does not necessarily require an exposure assessment. Not so. Simple allegations that Boykin was exposed to some level of benzene from YMUS products are insufficient. *See, e.g., Pluck v. BP Oil Pipeline Co.*, 640 F.3d 671 (6th Cir. 2011); *Sutera v. Perrier Grp. of Am. Inc.*, 986 F. Supp. 655, 667 (D. Mass. 1997) (refusing to admit expert testimony that "any exposure" to benzene is sufficient to cause disease); *Whiting v. Boston Edison Co.*, 891 F. Supp. 12, 25 (D. Mass. 1995).

In *Pluck*, the plaintiff's well was contaminated with benzene-containing gasoline from a burst pipeline. 640 F.3d at 674. After the plaintiff was diagnosed with NHL at age forty-eight, she and her husband filed suit against the pipeline, alleging the benzene exposure caused her NHL. *Id.* The pipeline moved to strike the opinion of plaintiffs' specific causation expert under *Daubert*, arguing the opinion was unreliable "because he formulated a specific causation opinion without evidence of dose, and subsequently performed an unreliable dose reconstruction in an attempt to support his opinion." *Id.* at 675. The plaintiff argued that the evidence of benzene exposure existed by virtue of its presence in the wells. *Id.* at 679. The district court disagreed, and struck the specific causation opinion as unreliable. *Id.* at 680. On appeal, the sixth circuit affirmed, stating, "it is well-settled that the mere existence of a toxin in the environment is

insufficient to establish causation without proof that the level of exposure could cause the plaintiff's symptoms." *Id.*

In the instant case, like *Pluck*, Dr. Harrison must have evidence of the dose Boykin received from YMUS benzene-containing products to support his causation opinion. He does not. His opinion must be stricken as unreliable. *See id.*; *see also McClain v. Metabolife Int'l, Inc.*, 401 F.3d 1233, 1242 (11th Cir. 2005) (stating that causation "requires not simply proof of exposure to the substance, but proof of enough exposure to cause the plaintiff's specific illness"); *Curtis v. M & S Petroleum, Inc.*, 174 F.3d 661, 670 (5th Cir. 1999) ("Scientific knowledge of the harmful level of exposure to a chemical, plus knowledge that the plaintiff was exposed to such quantities, are minimal facts necessary to sustain the plaintiffs' burden in a toxic tort case."); *Mitchell v. Gencorp Inc.*, 165 F.3d 778, 781 (10th Cir. 1999) ("[g]uesses, even if educated, are insufficient to prove the level of exposure in a toxic tort case"); *Nat'l Bank of Commerce v. Associated Milk Producers, Inc.*, 22 F. Supp. 2d 942, 961 (E.D. Ark. 1998) *aff'd sub nom. Nat'l Bank of Commerce of El Dorado v. Associated Milk Producers, Inc.*, 191 F.3d 858 (8th Cir. 1999) ("The Court is of the opinion that the "no-threshold" or "one-shot" theory has respectable scientific support as a matter of scientific theory. But, it does not provide a scientific basis for a jury to find that it was more likely than not that John McDougal's cancer was caused by AMPI's exposing him to milk contaminated with aflatoxin M-1."); *Wright v. Willamette Industries, Inc.*, 91 F.3d 1105, 1107-8 (8th Cir. 1996); *Wills v. Amerada Hess Corp.*, 2002 WL 140542 (S.D.N.Y. 2002), *aff'd*, 379 F.3d 32 (2d Cir. 2004) ("Plaintiff's expert is using a controversial theory that some toxins do not follow the dose-response relationship, but that any amount of exposure causes cancer. Even though benzene and PAHs have been shown to cause some types of cancer, it is too difficult a leap to allow testimony that says any amount of exposure to these

toxins caused squamous cell carcinoma of the head and neck in the Decedent."); *Sutera v. Perrier Group of Am.*, 986 F. Supp. 655, 666 (D.Mass. 1997) ("[A]lthough there is evidence that one camp of scientists . . . believes that a non-linear model is an appropriate basis for predicting the risks of low-level exposures to benzene, there is no scientific evidence that the linear no-safe threshold analysis is an acceptable scientific technique used by experts in determining causation in an individual instance."); *Whiting v. Boston Edison Co.*, 891 F.Supp. 12, 24 (D. Mass. 1995) (criticizing the linear no-threshold hypothesis because it has no known or potential rate of error and cannot be falsified or validated); *Johnston v. United States*, 597 F.Supp. 374, 393 (D.Kan. 1984) (noting that the linear no-threshold hypothesis is an assumption and that regulators use this model because it is more prudent to overestimate risk than to underestimate it and "just because scientists use hypotheses to describe something they really don't know for sure does not justify a court of law in using speculative hypotheses to determine that one person has caused harm to another").

The law is clear. Without evidence of Boykin's dose from YMUS products, or any other Defendant's products, Dr. Harrison cannot support his specific causation opinion. His testimony must be excluded.

CONCLUSION

Dr. Harrison's opinions are not supported by the scientific literature, and certainly are not supported by the actual facts of this case. He selectively chose and manipulated the available data to support the conclusion he desired to reach, then inserted his own *ipse dixit* opinion. Dr. Harrison's opinions are unreliable and must be excluded pursuant to *Daubert* and Rule 701, Federal Rules of Evidence.

WHEREFORE, Defendants respectfully requests this Court grant this Motion.

This the 13th day of February, 2015.

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APPENDIX
Table 1

STUDY	BENZENE SPECIFIC?	STATISTICALLY SIGNIFICANT?
Bernard et al. (1984) ³⁸	YES	NO
Giles et al. (1984) ³⁹	NO	YES
Everett et al. (1985) ⁴⁰	NO	YES
Binaschi et al. (1985) ⁴¹	NO	YES
Woods et al. (1987) ⁴²	NO	YES
Siemiatycki et al. (1987) ⁴³	YES	NO
Olsson and Brandt (1988) ⁴⁴	NO	YES
Schumacher & Delzell (1988) ⁴⁵	NO	NO
Brownson and Reif (1988) ⁴⁶	NO	NO
Cartwright et al. (1988) ⁴⁷	NO	YES (Glue exposure only)
Persson et al. (1988) ⁴⁸	YES	NO (With correct CI of 90%)
Persson et al. (1989) ⁴⁹	NO	YES
Franceschi et al. (1989) ⁵⁰	YES "Benzene & other Solvents"	NO
LaVecchia et al. (1989) ⁵¹	YES	NO
Hardell et al. (1984) ⁵²	YES	YES (Based on 3 exposed cases only)

³⁸ (Exhibit "CC").

³⁹ (Exhibit "DD").

⁴⁰ (Exhibit "EE").

⁴¹ (Exhibit "FF").

⁴² (Exhibit "GG").

⁴³ (Exhibit "HH").

⁴⁴ (Exhibit "II").

⁴⁵ (Exhibit "JJ").

⁴⁶ (Exhibit "KK").

⁴⁷ (Exhibit "LL").

⁴⁸ (Exhibit "MM").

⁴⁹ (Exhibit "NN").

⁵⁰ (Exhibit "OO").

⁵¹ (Exhibit "PP").

Table 2

RUBBER WORKER STUDIES	CONCERNING NHL?
<u>Michael et al. (1975)⁵³</u>	NO
<u>Tyroler et al (1976)⁵⁴</u>	NO
<u>McMichael et al. (1976)⁵⁵</u>	YES (Statistically Insignificant)*
<u>Peters et al. (1976)⁵⁶</u>	NO
<u>Doctoral Thesis of Keil Ulrich (1980)⁵⁷ (NOT PEER REVIEWED)</u>	-
<u>Delzell et al. (1982)⁵⁸</u>	NO
<u>Meinhardt et al. (1982)⁵⁹</u>	NO
<u>Norseth et al. (1985)⁶⁰</u>	NO
<u>Wilcosky et al. (1984)</u>	YES (Statistically Insignificant)*

*The Abstract summarizing the findings indicates that benzene "was not significantly associated with any of the cancers.

⁵² (Exhibit "QQ").

⁵³ (Exhibit "RR").

⁵⁴ (Exhibit "SS").

⁵⁵ (Exhibit "TT").

⁵⁶ (Exhibit "UU").

⁵⁷ (Exhibit "VV").

⁵⁸ (Exhibit "WW").

⁵⁹ (Exhibit "XX").

⁶⁰ (Exhibit "YY").

Table 3

META-ANALYSIS	SIGNIFICANT RISK FINDING?
Lamm, et al, (2005) ⁶¹	NO
Wong and Fu (2005) ⁶²	NO
Steinmaus, et al (2008) ⁶³	YES (High exposure only)
Kane and Newton (2010) ⁶⁴	NO
Alexander and Wagner (2010) ⁶⁵	NO
Vlaanderen, et al, (2011) ⁶⁶	NO
Keenan, et al, (2013) ⁶⁷	NO

⁶¹ (Exhibit "ZZ").⁶² (Exhibit "AAA").⁶³ (Exhibit "BBB").⁶⁴ (Exhibit "CCC").⁶⁵ (Exhibit "DDD").⁶⁶ (Exhibit "EEE").⁶⁷ (Exhibit "FFF").

CERTIFICATE OF SERVICE

I hereby certify that on February 13, 2015, the foregoing was electronically filed with the Clerk of the Court using the CM-ECF system. Notification of such filing was given by the CM-ECF system to those registered to receive a Notice of Electronic Filing for this case.

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